

can be stored under typical marine environmental conditions on a vessel and still have sufficient power for the light to meet the requirements of § 161.012-9.

§ 161.012-5 Approval procedures.

(a) An application for approval of a PFD light under this subpart must be sent to the Commandant (G-MSE), U.S. Coast Guard, Washington, DC 20593-0001.

(b) Each application for approval must contain—(1) The name and address of the applicant;

(2) Two copies of plans showing the construction details of the light;

(3) A detailed description of the applicant's production testing program; and

(4) A laboratory test report containing the observations and results of approval testing.

(c) The Commandant advises the applicant whether the light is approved. If the light is approved, an approval certificate is sent to the applicant.

[CGD 76-028, 44 FR 38785, July 2, 1979, as amended by CGD 88-070, 53 FR 34536, Sept. 7, 1988; CGD 95-072, 60 FR 50467, Sept. 29, 1995; CGD 96-041, 61 FR 50734, Sept. 27, 1996]

§ 161.012-7 Construction.

(a) Each light must be designed to be attached to a PFD without damaging the PFD or interfering with its performance.

(b) Each light and its power source must be designed to be removed and replaced without causing damage to the PFD.

(c) The storage life of the power source of a light must be twice as long as the period between the date of manufacture and the expiration date of the power source.

(d) Each light, prior to activation, must be capable of preventing leakage from its container of any chemicals it contains or produces.

(e) Each component of a light must be designed to remain serviceable in a marine environment for at least as long as the storage life of the light's power source.

(f) No light may have a water pressure switch.

(g) Each light must be designed so that when attached to a PFD, its light beam, at a minimum, is visible in an

arc of 180 degrees above or in front of the wearer.

(h) Each light, including its power source, must fit into a cylindrical space that is 150 mm (6 in.) long and 75 mm (3 in.) in diameter.

(i) Each light, including its power source, must not weigh more than 225g (8 oz.).

(j) Each light that is designed to operate while detached from a PFD must have a lanyard that can be used to connect it to the PFD. The lanyard must be at least 750 mm (30 in.) long.

(k) Each light designed to operate while detached from a PFD must be capable of floating in water with its light source at or above the surface of the water.

§ 161.012-9 Performance.

(a) If a light is a flashing light, its flash rate when first activated, or within five minutes thereafter, must be between 50 and 70 flashes per minute.

(b) Each light must—(1) Begin to shine within 2 minutes after activation; and

(2) Within 5 minutes after activation be capable of being seen from a distance of at least one nautical mile on a dark clear night.

(c) Each light must be designed to operate underwater continuously for at least 8 hours at a water temperature of $15^{\circ}\pm 5^{\circ}\text{C}$ ($59^{\circ}\pm 9^{\circ}\text{F}$). However, if the light needs air to operate, underwater operation is required only for 50 or more seconds during each minute of the eight hour period.

(d) Each light must be designed to operate both in sea water and in fresh water.

(e) A light that concentrates its light beam by means of a lens or curved reflector must not be a flashing light.

(f) Each light must be designed to operate in accordance with this section after storage for 24 hours at a temperature of $65^{\circ}\pm 2^{\circ}\text{C}$ ($149^{\circ}\pm 4^{\circ}\text{F}$), and after storage for 24 hours at $-30^{\circ}\pm 2^{\circ}\text{C}$ ($-22^{\circ}\pm 4^{\circ}\text{F}$).

§ 161.012-11 Approval tests.

(a) The approval tests described in this section must be conducted for each light submitted for Coast Guard approval. The tests must be conducted by a laboratory that has the equipment,

personnel, and procedures necessary to conduct the approval tests required by this subpart, and that is free of influence and control of the applicant and other manufacturers, suppliers, and vendors of PFD lights.

(b) A sample light must be activated at night under clear atmospheric conditions. However, two lights must be used if the power source is water activated, and one light must be activated in fresh water and the other in salt water having the approximate salinity of sea water. The light, or lights, must begin to shine within 2 minutes after activation and, within 5 minutes after activation, must be seen from a distance of at least one nautical mile against a dark background.

(c) At least ten sample lights must be selected at random from a group of at least 25. Each sample light must be kept at a constant temperature of $65^{\circ}\pm 2^{\circ}$ °C ($149^{\circ}\pm 4^{\circ}$ °F) for 24 hours. Each sample light must then be kept at a constant temperature of $\text{minus } 30^{\circ}\pm 2^{\circ}$ °C ($\text{minus } 22^{\circ}\pm 4^{\circ}$ °F) for 24 hours. Five samples must then be submerged in salt water having the approximate salinity of sea water and the five other samples must be submerged in fresh water. The temperature of the water must be $15^{\circ}\pm 5^{\circ}$ °C ($59^{\circ}\pm 9^{\circ}$ °F). The lights must then be activated and left submerged for eight hours. However, if their power sources need a supply of air to operate, the lights may be brought to their normal operating positions at the surface of the water for up to 10 seconds per minute during the eight hour period. At least nine of the ten lights must operate continuously over the eight hour period. If the lights are flashing lights, at least nine of ten must have a flash rate of between 50 and 70 flashes per minute when first activated or within five minutes thereafter.

(d) Individual tests must be conducted on a sample light to determine whether the light meets the requirements of § 161.012-7, except that technical data showing compliance with § 160.012-7(c) may be submitted with the application for approval in lieu of performing an individual test.

§ 161.012-13 Production tests and inspections.

(a) The manufacturer of approved lights must randomly select a sample of ten lights from each lot of lights produced. Each lot must not exceed 1,000 lights. At least nine of the ten lights, when tested in accordance with the test described in § 161.012-11(c), must meet the test criteria prescribed by that section. If less than nine lights meet the test criteria, another random sample of ten lights must be taken and tested. If less than nine of these lights meet the test criteria, none of the lights in the lot may be sold as Coast Guard approved equipment.

(b) The Coast Guard does not inspect lights approved under this subpart on a regular schedule. However, the Commandant may select samples and conduct tests and examinations whenever necessary to determine whether the lights are being manufactured in compliance with the requirements in this subpart.

§ 161.012-15 Markings.

(a) Each light manufactured under Coast Guard approval must be permanently and legibly marked with:

(1) The manufacturer's name or trade mark that clearly identifies the model designation;

(2) The Coast Guard approval number assigned to light; and

(3) Instructions on how to activate the light.

(b) The power source of each light must be permanently and legibly marked with its date of manufacture and expiration date. Each date must include the month and year.

§ 161.012-17 Instructions.

(a) Each light must have instructions on how to attach it to a PFD in a manner that complies with § 161.012-7(a). However, in the case of lights that are to be attached by a PFD manufacturer, only one set of instructions need be provided for each shipment of lights.

(b) If a light is designed to be attached to a finished PFD, any attachment materials that are not supplied with the light must be clearly identified in the instructions. If a light is to